UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 73551

CSAH NO. 32

OVER THE

SAUK RIVER

DISTRICT 3 - STEARNS COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected below water at Bridge No. 73551, Piers 1, 2, 3, and 4, were found to be in good condition with no defects of structural significance at this time. The piles exhibited coating failure from 1 foot above the waterline to the mudline with light a layer of aquatic growth below the waterline. The channel bottom around the substructure units appeared stable with no significant scour.

INSPECTION FINDINGS:

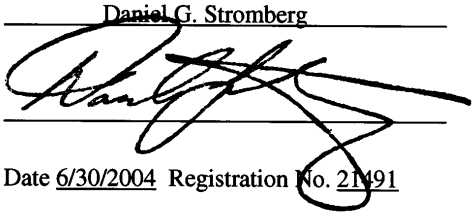
(A) All of the piles for Piers 1 through 4 exhibited coating loss from 1 foot above the waterline to the mudline with light aquatic growth below the waterline. There was minimal deterioration present on the piles in the regions of the coating loss.

RECOMMENDATIONS:

(A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

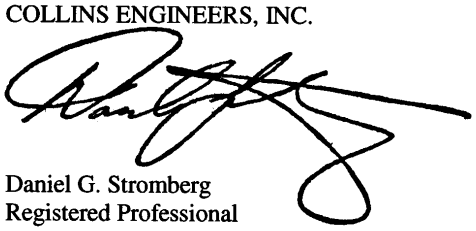
Daniel G. Stromberg



Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 73551

Feature Crossed: The Sauk River

Feature Carried: CSAH No. 2

Location: District 3 – Stearns County

Bridge Description: The superstructure consists of a five span reinforced concrete slab. The superstructure is supported by two reinforced concrete abutments and four steel pipe pile piers. The piers are numbered 1 through 4 starting from the north end of the bridge.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: September 28, 2002

Weather Conditions: Rain, "50E F

Underwater Visibility: "1 Foot

Waterway Velocity: Negligible / None

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 through 4.

General Shape: Piers 1 through 4 consist of a single line of nine steel pipe piles supporting a reinforced concrete cap. Each abutment is an open abutment with a grouted riprap slopewall.

Maximum Water Depth at Substructure Inspected: Approximately 11.3 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the parapet wall at the east end of Pier 3.

Water Surface: The waterline was approximately 13.0 feet below reference.
Assumed Waterline Elevation = 87.0.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 8

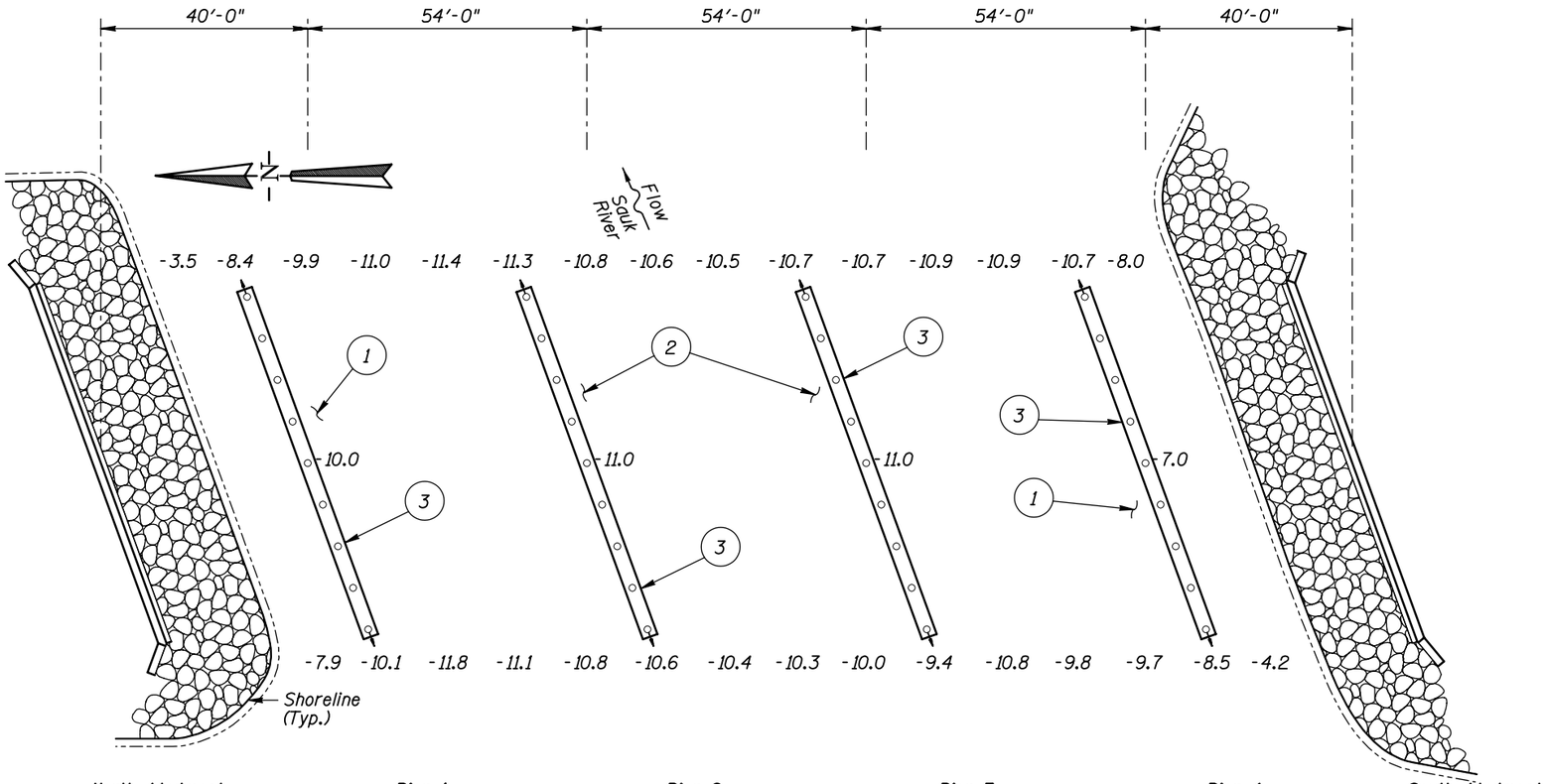
Item 61: Channel and Channel Protection: Code 8

Item 92B: Underwater Inspection: Code B/9/02

Item 113: Scour Critical Bridges: Code L/02

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____ Yes __X___ No



SOUNDING PLAN

GENERAL NOTES:

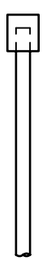
1. Piers 1 through 4 were inspected underwater.
2. At the time of inspection on September 28, 2002, the waterline was located approximately 13.0 feet below the top of the parapet at the downstream end of Pier 3. Since insufficient bridge elevation information was available a reference elevation of 100.0 was assumed. Base on the assumed reference the waterline elevation was 87.0
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES:

(1) The channel bottom material around Piers 1 and 4 consisted of up to 1 foot diameter riprap.

(2) The channel bottom material round Piers 2 and 3 consisted sand and some stones with up to 4 inches of probe rod penetration.

(3) All of the piles for Piers 1 through 4 exhibited coating loss from 1 foot above the waterline to the mudline with minimal steel deterioration and with light aquatic growth on the surfaces below the waterline.



TYPICAL END VIEW OF PIERS

Legend

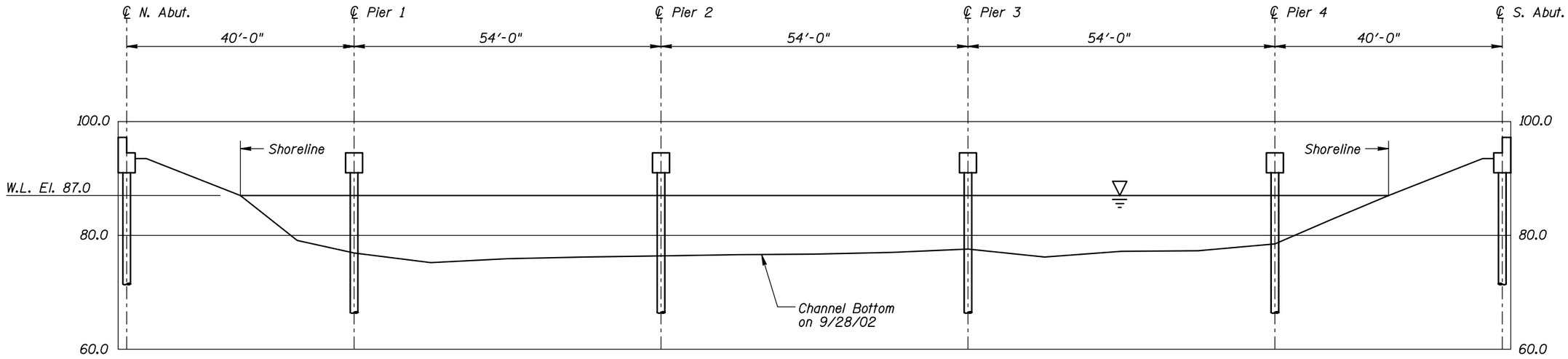
-5.2	Sounding Depth from Waterline (9/28/02)
○	16" Diameter Steel Encased, Cast-in-place Concrete Pile
	Battered 16" Diameter Steel Encased, Cast-in-place Concrete Pile
	Grouted Riprap

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

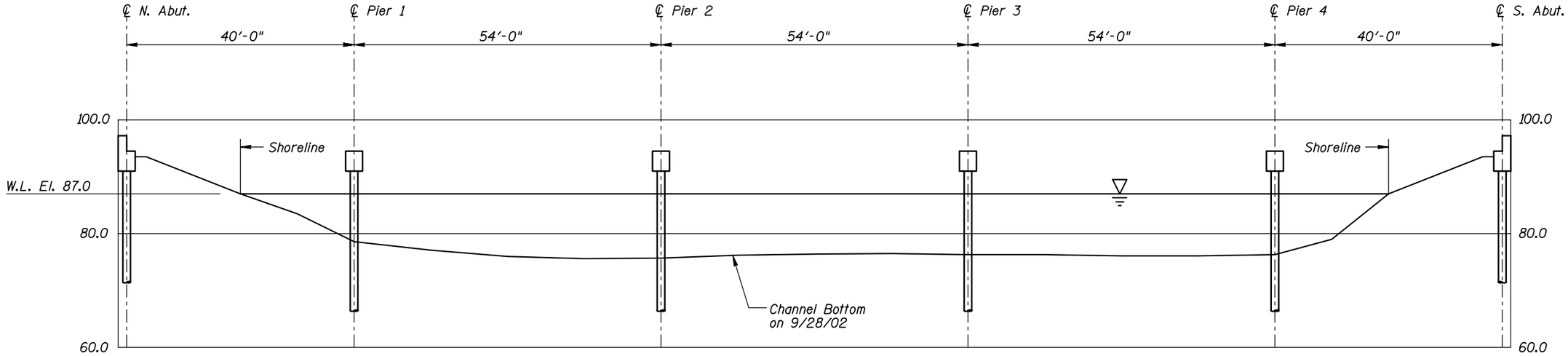
STRUCTURE NO. 73551
OVER THE SAUK RIVER
DISTRICT 3, STEARNS COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35127355I		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
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UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	**COLLINS ENGINEERS, INC.**	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=20′
Code: 35127355I		Figure No.: 2

Photograph 1. Overall View of the Structure, Looking Southeast.

Photograph 2. View of the Pier 1, Looking Northwest.

Photograph 3. View of Pier 2, Looking Northwest.

Photograph 4. View of Pier 3, Looking Northwest.

Photograph 5. View of Pier 4, Looking Northwest.

Photograph 6. Typical View of the Condition of the Piles at the Waterline.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: September 28, 2002

ON-SITE TEAM LEADER: Shirley M. Walker, P.E.

BRIDGE NO: 73551 WEATHER: Rain "50E F

WATERWAY CROSSED: The Sauk River

DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER

PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins

EQUIPMENT: Scuba, U/W Light, Scraper, Lead Line, Sounding Pole, Probe Rod, Camera

TIME IN WATER: 2:00 A.M.

TIME OUT OF WATER: 2:30 A.M.

WATERWAY DATA: VELOCITY Negligible / None
VISIBILITY "1 foot
DEPTH "11.3 feet maximum at Pier 2

ELEMENTS INSPECTED: Piers 1 through 4

REMARKS: Overall, the submerged steel of the piles was in good condition exhibiting coating failure from 1 foot above the waterline to the mudline with light aquatic growth below the waterline. There was essentially no deterioration of the steel where the protective coating is failed or failing. No channel bottom deficiencies were encountered.

FURTHER ACTION NEEDED: _____ YES ____X___ NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 73551
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Sauk River

INSPECTION DATE September 28, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	10.1’	8	N	N	9	N	8	N	N	8	N	8	N	8	N	8	N	N
	Pier 2	11.3’	8	N	N	9	N	8	N	N	N	N	8	N	8	N	8	N	N
	Pier 3	11.0’	8	N	N	9	N	8	N	N	N	N	8	N	8	N	8	N	N
	Pier 4	10.7’	8	N	N	9	N	8	N	N	8	N	8	N	8	N	8	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, the submerged steel of the piles was in good condition exhibiting coating failure from 1 foot above the waterline to the mudline with light aquatic growth below the waterline. There was essentially no deterioration of the steel where the protective coating is failed or failing. No channel bottom deficiencies were encountered.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.